

APPARATUS AND METHOD USING
WAVEFRONT PHASE MEASUREMENTS
TO DETERMINE GEOMETRICAL RELATIONSHIPS

ABSTRACT OF THE DISCLOSURE

5 An apparatus includes a microwave source that produces a microwave feed
beam, and a first pair of microwave sensors that each intercept and receive a
portion of the microwave feed beam. The two microwave sensors are spaced
apart from each other along a first-pair axis. A first phase-comparison device has
as it inputs the output signals of the two microwave sensors, and as an output a
10 first phase comparison of the first-sensor output signal and the second-sensor
output signal. A first geometrical calculator has as an input the first phase
comparison and as an output a geometrical relationship of the first-pair axis to an
other feature. This geometrical relationship output may be used to generate a
control signal that is used to alter the geometrical relationship. There may be
15 additional microwave sensors operating in a similar manner but spaced to provide
information for other geometrical axes or allow improvements in geometrical
measurements.